

Section 1. Registration Information

Source Identification

Facility Name: Lake Havasu City Public Works Department
Parent Company #1 Name:
Parent Company #2 Name:

Submission and Acceptance

Submission Type: Re-submission
Subsequent RMP Submission Reason: 5-year update (40 CFR 68.190(b)(1))
Description:
Receipt Date: 29-Jun-2011
Postmark Date: 29-Jun-2011
Next Due Date: 29-Jun-2016
Completeness Check Date: 29-Jun-2011
Complete RMP: Yes
De-Registration / Closed Reason:
De-Registration / Closed Reason Other Text:
De-Registered / Closed Date:
De-Registered / Closed Effective Date:
Certification Received: Yes

Facility Identification

EPA Facility Identifier: 1000 0019 5727
Other EPA Systems Facility ID:

Dun and Bradstreet Numbers (DUNS)

Facility DUNS: 37613692
Parent Company #1 DUNS:
Parent Company #2 DUNS:

Facility Location Address

Street 1: 925 Port Drive
Street 2:
City: Lake Havasu City
State: ARIZONA
ZIP: 86404
ZIP4:
County: MOHAVE

Facility Latitude and Longitude

Latitude (decimal): 34.49887
Longitude (decimal): -114.359459
Lat/Long Method: Interpolation - Digital map source (TIGER)
Lat/Long Description: Storage Tank
Horizontal Accuracy Measure: 25
Horizontal Reference Datum Name: North American Datum of 1983
Source Map Scale Number:

Owner or Operator

Operator Name:	Lake Havasu City
Operator Phone:	(928) 855-2618

Mailing Address

Operator Street 1:	900 London Bridge Road
Operator Street 2:	
Operator City:	Lake Havasu City
Operator State:	ARIZONA
Operator ZIP:	86404
Operator ZIP4:	
Operator Foreign State or Province:	
Operator Foreign ZIP:	
Operator Foreign Country:	

Name and title of person or position responsible for Part 68 (RMP) Implementation

RMP Name of Person:	Charles Michalski
RMP Title of Person or Position:	Water Manager
RMP E-mail Address:	MichalskiC@lhcaz.gov

Emergency Contact

Emergency Contact Name:	Doug Foster
Emergency Contact Title:	Production Supervisor
Emergency Contact Phone:	(928) 855-2618
Emergency Contact 24-Hour Phone:	(928) 208-7948
Emergency Contact Ext. or PIN:	
Emergency Contact E-mail Address:	FosterD@lhcaz.gov

Other Points of Contact

Facility or Parent Company E-mail Address:	
Facility Public Contact Phone:	(928) 855-2618
Facility or Parent Company WWW Homepage Address:	http://ci.lake-havasus-city.az.us

Local Emergency Planning Committee

LEPC:	Mohave County LEPC
-------	--------------------

Full Time Equivalent Employees

Number of Full Time Employees (FTE) on Site:	7
FTE Claimed as CBI:	

Covered By

OSHA PSM :	Yes
EPCRA 302 :	
CAA Title V:	
Air Operating Permit ID:	

OSHA Ranking

OSHA Star or Merit Ranking:

Last Safety Inspection

Last Safety Inspection (By an External Agency) Date:	24-Jun-2004
Last Safety Inspection Performed By an External Agency:	State occupational safety agency

Predictive Filing

Did this RMP involve predictive filing?:

Preparer Information

Preparer Name:	Risk Management Professionals, Inc
Preparer Phone:	(949) 282-0123
Preparer Street 1:	300 Goddard, Suite 200
Preparer Street 2:	
Preparer City:	Irvine
Preparer State:	CALIFORNIA
Preparer ZIP:	92618
Preparer ZIP4:	
Preparer Foreign State:	
Preparer Foreign Country:	
Preparer Foreign ZIP:	

Confidential Business Information (CBI)

CBI Claimed:
Substantiation Provided:
Unsanitized RMP Provided:

Reportable Accidents

Reportable Accidents:	See Section 6. Accident History below to determine if there were any accidents reported for this RMP.
-----------------------	---

Process Chemicals

Process ID:	1000027741
Description:	Water Disinfection System
Process Chemical ID:	1000033054
Program Level:	Program Level 3 process
Chemical Name:	Chlorine
CAS Number:	7782-50-5
Quantity (lbs):	12000
CBI Claimed:	
Flammable/Toxic:	Toxic

Process NAICS

Process ID:	1000027741
Process NAICS ID:	1000028044
Program Level:	Program Level 3 process
NAICS Code:	22131
NAICS Description:	Water Supply and Irrigation Systems

Section 2. Toxics: Worst Case

Toxic Worst ID: 1000023022

Percent Weight:

Physical State:

Model Used:

Release Duration (mins):

Wind Speed (m/sec):

Atmospheric Stability Class:

Topography:

Gas liquified by pressure

EPA's RMP*Comp(TM)

10

1.5

F

Urban

Passive Mitigation Considered

Dikes:

Enclosures:

Berms:

Drains:

Sumps:

Other Type:

Section 3. Toxics: Alternative Release

Toxic Alter ID: 1000024751

Percent Weight:

Physical State:

Model Used:

Wind Speed (m/sec):

Atmospheric Stability Class:

Topography:

Gas liquified by pressure

EPA's RMP*Comp(TM)

3.0

D

Urban

Passive Mitigation Considered

Dikes:

Enclosures:

Berms:

Drains:

Sumps:

Other Type:

Active Mitigation Considered

Sprinkler System:

Deluge System:

Water Curtain:

Neutralization:

Excess Flow Valve:

Flares:

Scrubbers:

Emergency Shutdown:

Other Type:

Section 4. Flammables: Worst Case

No records found.

Section 5. Flammables: Alternative Release

No records found.

Section 6. Accident History

No records found.

Section 7. Program Level 3

Description

In the Lake Havasu City's daily operation, chlorine gas is used for the disinfection of potable water. Currently chlorine gas is stored and used at the Agency's Water Treatment Facility in quantities greater than the process threshold limits specified under OSHA PSM and US EPA Risk Management Program regulations. The regulations require that a Risk Management Program be developed, and be submitted for any processes that includes use of quantities of regulated substances greater than the process threshold limits.

Program Level 3 Prevention Program Chemicals

Prevention Program Chemical ID:	1000028295
Chemical Name:	Chlorine
Flammable/Toxic:	Toxic
CAS Number:	7782-50-5

Prevention Program Level 3 ID:	1000023890
NAICS Code:	22131

Safety Information

Safety Review Date (The date on which the safety information was last reviewed or revised):	26-May-2011
---	-------------

Process Hazard Analysis (PHA)

PHA Completion Date (Date of last PHA or PHA update):	26-May-2011
---	-------------

The Technique Used

What If:	
Checklist:	
What If/Checklist:	Yes
HAZOP:	Yes
Failure Mode and Effects Analysis:	
Fault Tree Analysis:	
Other Technique Used:	
PHA Change Completion Date (The expected or actual date of completion of all changes resulting from last PHA or PHA update):	26-May-2012

Major Hazards Identified

Toxic Release:	Yes
Fire:	Yes
Explosion:	
Runaway Reaction:	
Polymerization:	
Overpressurization:	
Corrosion:	Yes
Overfilling:	Yes

Contamination:
Equipment Failure: Yes
Loss of Cooling, Heating, Electricity, Instrument Air: Yes
Earthquake:
Floods (Flood Plain):
Tornado:
Hurricanes:
Other Major Hazard Identified:

Process Controls in Use

Vents:
Relief Valves: Yes
Check Valves: Yes
Scrubbers:
Flares:
Manual Shutoffs: Yes
Automatic Shutoffs: Yes
Interlocks:
Alarms and Procedures: Yes
Keyed Bypass:
Emergency Air Supply:
Emergency Power: Yes
Backup Pump:
Grounding Equipment: Yes
Inhibitor Addition:
Rupture Disks:
Excess Flow Device:
Quench System:
Purge System: Yes
None:
Other Process Control in Use:

Mitigation Systems in Use

Sprinkler System: Yes
Dikes:
Fire Walls:
Blast Walls:
Deluge System:
Water Curtain:
Enclosure: Yes
Neutralization:
None:
Other Mitigation System in Use: ChlorTainer, secondary containment vessel

Monitoring/Detection Systems in Use

Process Area Detectors: Yes
Perimeter Monitors:
None:
Other Monitoring/Detection System in Use:

Changes Since Last PHA Update

Reduction in Chemical Inventory:
Increase in Chemical Inventory:
Change Process Parameters:
Installation of Process Controls:
Installation of Process Detection Systems:
Installation of Perimeter Monitoring Systems:
Installation of Mitigation Systems:
None Recommended:
None: Yes
Other Changes Since Last PHA or PHA Update:

Review of Operating Procedures

Operating Procedures Revision Date (The date of the most recent review or revision of operating procedures): 03-Aug-2010

Training

Training Revision Date (The date of the most recent review or revision of training programs): 26-May-2011

The Type of Training Provided

Classroom: Yes
On the Job: Yes
Other Training:

The Type of Competency Testing Used

Written Tests: Yes
Oral Tests:
Demonstration: Yes
Observation:
Other Type of Competency Testing Used:

Maintenance

Maintenance Procedures Revision Date (The date of the most recent review or revision of maintenance procedures): 26-May-2011

Equipment Inspection Date (The date of the most recent equipment inspection or test): 26-May-2011

Equipment Tested (Equipment most recently inspected or tested): 5/26/2011, visual inspection of ChlorTainers, Levels, and Guages

Management of Change

Change Management Date (The date of the most recent change that triggered management of change procedures):

Change Management Revision Date (The date of the most recent review or revision of management of change procedures): 26-May-2011

Pre-Startup Review

Pre-Startup Review Date (The date of the most recent pre-startup review):

Compliance Audits

Compliance Audit Date (The date of the most recent compliance audit): 01-Aug-2009

Compliance Audit Change Completion Date (Expected or actual date of completion of all changes resulting from the compliance audit):

Incident Investigation

Incident Investigation Date (The date of the most recent incident investigation (if any)):

Incident Investigation Change Date (The expected or actual date of completion of all changes resulting from the investigation):

Employee Participation Plans

Participation Plan Revision Date (The date of the most recent review or revision of employee participation plans): 26-May-2011

Hot Work Permit Procedures

Hot Work permit Review Date (The date of the most recent review or revision of hot work permit procedures): 26-May-2011

Contractor Safety Procedures

Contractor Safety Procedures Review Date (The date of the most recent review or revision of contractor safety procedures): 26-May-2011

Contractor Safety Performance Evaluation Date (The date of the most recent review or revision of contractor safety performance): 26-May-2011

Confidential Business Information

CBI Claimed:

Section 8. Program Level 2

Section 9. Emergency Response

Written Emergency Response (ER) Plan

Community Plan (Is facility included in written community emergency response plan?): Yes

Facility Plan (Does facility have its own written emergency response plan?):

Response Actions (Does ER plan include specific actions to be taken in response to accidental releases of regulated substance(s)?):

Public Information (Does ER plan include procedures for informing the public and local agencies responding to accidental release?):

Healthcare (Does facility's ER plan include information on emergency health care?):

Emergency Response Review

Review Date (Date of most recent review or update of facility's ER plan):

Emergency Response Training

Training Date (Date of most recent review or update of facility's employees):

Local Agency

Agency Name (Name of local agency with which the facility ER plan or response activities are coordinated): Lake Havasu City Fire Department

Agency Phone Number (Phone number of local agency with which the facility ER plan or response activities are coordinated): (928) 855-1141

Subject to

OSHA Regulations at 29 CFR 1910.38: Yes

OSHA Regulations at 29 CFR 1910.120:

Clean Water Regulations at 40 CFR 112:

RCRA Regulations at CFR 264, 265, and 279.52:

OPA 90 Regulations at 40 CFR 112, 33 CFR 154, 49 CFR 194, or 30 CFR 254:

State EPCRA Rules or Laws: Yes

Other (Specify):

Executive Summary

The safe storage, handling and use of chlorine are important to the operations of the Lake Havasu City Public Works Department Water Division. The facility employs 7 people at this location. Liquid chlorine is stored in the one-ton containers and chlorine gas is suctioned out of the containers using vacuum pressure generated by a flow of pumped water. Chlorine is mixed with water in order to disinfect it.

The Lake Havasu City Public Works Department Water Division has developed a risk management program to address 40 CFR Part 68 Risk Management Programs for Chemical Accidental Release Prevention, and to enhance already existing safety and emergency action programs. The Lake Havasu City Public Works Department is extremely diligent in the handling of all chemicals and is dedicated to the safety of its employees and the neighboring community. The Lake Havasu City Public Works Department staff are highly trained and utilize modern equipment to monitor the facility and provide safeguards, while effectively and safely using chlorine gas as a disinfectant.

ACCIDENTAL RELEASE PREVENTION AND EMERGENCY RESPONSE POLICIES

The Lake Havasu City Public Works Department Water Division has demonstrated a commitment to worker and public safety. This commitment is demonstrated by the resources invested in accident prevention, such as personnel training and consideration of safety in the design, operation, and maintenance of the chlorine potable water disinfection system. The Lake Havasu City Public Works Department policy is to implement reasonable controls to prevent foreseeable releases of regulated substances.

STATIONARY SOURCE AND REGULATED SUBSTANCE

The Lake Havasu City Public Works Department Water Division uses chlorine gas to provide disinfection for the City's potable water treatment processes. Liquid chlorine is delivered to the facility in one-ton containers. All one-ton chlorine containers connected to the system are within a ChlorTainer secondary containment vessel. Chlorine gas under pressure flows from each container through a vacuum regulator that is directly connected to each ChlorTainer. The vacuum regulators reduce the chlorine pressure to a vacuum. The chlorine gas is suctioned out of the containers using vacuum pressure generated by a flow of pumped water. Gaseous chlorinators are installed in an enclosed room adjacent to the ChlorTainers. The chlorinators meter and inject gaseous chlorine into the raw water supply as it enters the Water Treatment Facility's chlorine contact basins.

HAZARD ASSESSMENT SUMMARY/OFFSITE CONSEQUENCE ANALYSIS

Worst-Case Release Scenario Results Summary

Scenario Description: Per 40 CFR 68.25 regulations, one worst case analysis has been defined as a release of the greatest amount held in a single vessel, taking into account administrative controls that limit the maximum quantity, over a ten (10) minute period. The most pessimistic meteorological conditions were used, as specified by 40 CFR 68.22 regulations. RMP*Comp was used to determine the maximum downwind endpoint distance. The results show the off-site areas that will be affected. This worst case release scenario is highly unlikely to occur because of active mitigation measures that can be taken and weather conditions that are unlikely as well.

Alternative Release Scenario Results Summary

Scenario Description: A more realistic alternative release scenario was modeled using RMP*Comp. For this alternative release scenario, the total quantity of chlorine calculated to be released is located in the Hazard Assessment report located at the facility. The results can be found in the RMP*Submit electronic submission. The meteorological conditions specified by regulation 40 CFR 68.28 for alternative release scenarios were used. The EPA's own RMP*Comp was used to determine the maximum downwind endpoint distance.

Risk Considerations

Although the storage and use of gaseous chlorine has inherent potential risks, and worst-case release scenarios can potentially reach the community; the Lake Havasu City Public Works Department has recognized these potential risks and structured its safety programs to make the worst case type of event non-credible. In addition to the safety practices of the company and plant personnel

to make this worst-case event non-credible, it should also be recognized that there are inherent analysis assumptions that make the results of the atmospheric dispersion analysis appear worse than what would actually be expected during such an event (e.g., In the event of a release, sudden rupture and release of chlorine would be highly turbulent. Turbulence causes entrainment of air and the released vapor dilutes much more quickly than is shown in the model).

In addition to the use of conservative analysis assumptions that over-predict the effects of a potential release, other characteristics of the facility and site serve to minimize the potential risks associated with a chlorine release:

ChlorTainer, secondary containment vessels are used for all one-ton chlorine containers

There are process valves to permit isolation of any leaks in place.

There are chlorine sensors in place to allow early detection of a release.

Personal Protective Equipment (PPE) is used by plant personnel, as necessary.

ACCIDENTAL RELEASE PREVENTION PROGRAM AND CHEMICAL-SPECIFIC PREVENTION STEPS

As part of the implementation of this EPA Risk Management Program, key Prevention Program elements were implemented by The Lake Havasu City Public Works Department Water Division to manage process safety issues associated with the use of chlorine disinfection. In addition, common industry standards, policies, and procedures are currently utilized to ensure safe practices are being performed. The EPA Prevention Program 3 elements include:

- * Process Safety Information
- * Process Hazard Analysis
- * Operating Procedures
- * Training
- * Management of Change
- * Pre-Startup Review
- * Compliance Audits
- * Incident Investigation
- * Employee Participation
- * Hot Work Permit
- * Contractors
- * Emergency Response Plan

Incident Investigation (item 7.11 a & b): as of this date there have been no incidents to investigate, therefore the date for this item is blank.

FIVE-YEAR ACCIDENT HISTORY

There have been no applicable releases of chlorine at the Lake Havasu City Public Works Department Water Division in the past 5 years.

EMERGENCY RESPONSE PROGRAM

The Lake Havasu City Public Works Department has an Emergency Action Plan for the facility that is filed with Lake Havasu City Fire Department and includes:

- * Emergency Alarm Procedures
- * Evacuation Procedures
- * Safety and Health Considerations
- * Notification Procedures

PLANNED CHANGES TO IMPROVE SAFETY

Several studies have been conducted to examine mitigation measures to improve safety at the Lake Havasu City Public Works Department. These studies include the following: Process Hazard Analysis and Hazard Assessment. Any outstanding recommendations from these studies will have been addressed within a year of their recommendation.